

CONSUMERS' CONCERN AND BELIEFS ON THE RELATIONSHIP WATER QUALITY – HUMAN HEALTH – ENVIRONMENT PROTECTION

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Abstract: The paper present the results of a research that aimed to reveal customers' perceptions on the relationship Water Quality – Human Health and quality of life – Environment Protection in order to find better ways to educate them towards a sustainable behavior. Thus, it was discovered which are, in customers' opinion: the importance of having clean waters through wastewater treatment for customers' health and quality of life, the evaluation of the effects of untreated wastewaters on customers' health and quality of life, the relationship between these two aspects; the importance for the environment of having clean waters through wastewater treatment, the evaluation of the effects of untreated wastewaters on the environment and the relationship between these two aspects. The results show a high degree of awareness on the importance of water treatment both for human health and quality of life and for environment protection and pollution prevention and a perception of high negative effects in the case of untreated wastewaters. This is a strong premise for achieving and consolidating an environment oriented attitude of the studied population.

Key words: consumers, beliefs, water quality, human health, environment protection.

Introduction

Clean freshwater is a resource for which there is no substitute, which becomes scarcer every day, while the demand for it increases rapidly, which is more polluted as time goes by, but is protected and managed through a poorly developed (national and international) legal frame compared to the needs [1].

Freshwater and wastewater are related to almost any production and consumption activity.

As a consequence, the consumer has a direct impact on countless activities in the production-consumption-disposal chain of activities and also an indirect impact on others through his influence: the consumer can sanction companies who damage the environment, can choose the products based on environmental criteria etc.[2].

Therefore, the studies about the beliefs, attitudes, concerns etc. related to fresh water use, wastewater impact and others are necessary in the path of creating a more sustainable water behavior of the population [3].

The objective of the research described here was to evaluate the water related beliefs of the customers of the water company. The results presented in this paper belong to a broader study on the attitudes of the customers of a regional water company (SC Compania de Apa Somes SA – CASSA) related to the services of the company, the relationship with its customers, the customers' environment oriented attitude etc., as a part of the ISPA measure ISPA 2000/RO/16/P/PE/008 Rehabilitation and Modernization of the Water and Sewerage Infrastructure for the Area of Cluj [4, 5].

A simple random survey was implemented. A home interview managed by a trained operator was used to collect the data, which was recorded on printed questionnaires. The margin of error of the survey was 5% and confidence level was 95%. The total number of valid questionnaires completed was 384. CASSA delivered a database with all its domestic customers: houses and block associations. The subjects were randomly selected from this list. The interview was directed to an adult person (over 18 years).

From the survey perspective, the univers population is composed of the adult domestic customers of CASSA in Cluj-Napoca city (more precisely, domestic users of CASSA services). The whole population of Cluj-Napoca is CASSA customer, so we can understand the results of the research as being valid for the entire population of the city. The city of Cluj-Napoca has 376000 inhabitants (permanent or short and medium term residents) and is the third biggest city in Romania (according to the census of 2002) [5].

From a geographical point of view, the research included the municipal area of Cluj-Napoca.

All the inhabitants of Cluj-Napoca are customers of the water company. Consequently, studying customers' attitude, we actually study the entire population's attitude towards water, in particular, and nature, in general.

Results and discussions

The information collected was about two aspects: in customers opinions, (i) how important is to have clean waters through wastewater treatment: a) for customers' health and b) for the environment; (ii) the evaluation of the effects of untreated wastewaters: a) on customers' health and b) on the environment.

The first two questions aimed to reveal the importance of having clean waters through wastewater treatment for customers' health and quality of life, the evaluation of the effects of untreated wastewaters on customers' health and quality of life and the relationship between these two aspects.

<p><i>“How much does it matter for you to have the wastewaters treated and returned them clean into the nature?”</i></p>	<p><i>“If the wastewaters are returned to the environment without being treated, does this have any impact on your health and on the quality of your life?”</i></p>																												
<table border="1"> <caption>Data for Question 1: Importance of clean water</caption> <thead> <tr> <th>Answer</th> <th>Percent</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0.85%</td> </tr> <tr> <td>1</td> <td>0.56%</td> </tr> <tr> <td>2</td> <td>5.08%</td> </tr> <tr> <td>3</td> <td>23.16%</td> </tr> <tr> <td>4</td> <td>55.65%</td> </tr> <tr> <td>5</td> <td>14.69%</td> </tr> </tbody> </table>	Answer	Percent	0	0.85%	1	0.56%	2	5.08%	3	23.16%	4	55.65%	5	14.69%	<table border="1"> <caption>Data for Question 2: Impact of untreated wastewater</caption> <thead> <tr> <th>Answer</th> <th>Percent</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>4.24%</td> </tr> <tr> <td>1</td> <td>0.28%</td> </tr> <tr> <td>2</td> <td>0.85%</td> </tr> <tr> <td>3</td> <td>43.22%</td> </tr> <tr> <td>4</td> <td>44.35%</td> </tr> <tr> <td>5</td> <td>7.06%</td> </tr> </tbody> </table>	Answer	Percent	0	4.24%	1	0.28%	2	0.85%	3	43.22%	4	44.35%	5	7.06%
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<p>It can be stated with a 95% probability that: between 74%–84% of the Cluj-Napoca inhabitants declare it is important and very important for them that the wastewaters are treated and returned clean into the environment; at the same time, only between 16%–26% grant a low and very low importance to wastewater treatment for them or have no opinion on the matter.</p> <p>A high importance of the clean waters for them indicates they understand themselves involved in the interaction cycle between the environment/water and the man and, consequently, affected by it. This judgment makes them more likely to act according to a</p>	<p>It can be stated with a 95% probability that: between 83%–93% of the Cluj-Napoca inhabitants see the effects of untreated wastewaters on their health and quality of life as bad and very bad.</p> <p>The acknowledgement of a danger is the first step towards protection against it and a high evaluation of this is the second one.</p> <p>The higher the evaluation of the danger of untreated wastewaters, the more sensitive the people become to the issue and the better are the chances to adopt a positive attitude towards water and environment protection and pollution prevention.</p> <p>The combination between the high evaluation of the negative effects of untreated wastewaters on</p>																												

<p>sustainable attitude towards water, in particular, and environment, in general. We can conclude that this is a positive situation from the point of view of influencing the consumers towards an environment oriented attitude.</p>	<p>their health and quality of life and the high importance of having clean waters through wastewater treatment (revealed by the first question) raises the chances of transposing the beliefs and intentions into real actions of a sustainable attitude.</p> <p>For example, the high level of awareness on the danger of untreated wastewaters on their health increase the chances to accept a raise in the wastewater tariff with the purpose of improving the procedures and thus of protecting their health, compared to the situation when the perception on the danger would be low.</p>
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The last two questions aimed to reveal the importance for the environment of having clean waters through wastewater treatment, the evaluation of the effects of untreated wastewaters on the environment and the relationship between these two aspects.

<p><i>“How much does it matter for the environment protection, pollution prevention to have the wastewaters treated and returned them clean to the nature?”</i></p>	<p><i>“If the wastewaters are returned to the environment without being treated, does this have any impact on the environment?”</i></p>																										
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<p>It can be stated with a 95% probability that: between 82%–92% of the Cluj-Napoca inhabitants declare it is important and very important for the environment protection, pollution prevention that the wastewaters are treated and returned clean into the environment.</p> <p>Acknowledging a high importance of the clean waters through wastewaters treatment is an indicator of understanding the interactions and consequences between the quality of an</p>	<p>It can be stated with a 95% probability that: between 87%–97% of the Cluj-Napoca inhabitants see the consequences on the environment of discharging untreated wastewaters in the nature as bad and very bad.</p> <p>These results demonstrate people’s high awareness on the impact of water treatment on the nature protection, which is, again, helpful for creating a sustainable behavior.</p> <p>Even more, the high evaluation of the danger</p>																										

<p>environment component (water in our case) and the environment in general. At the same time, allocating a high degree of importance to wastewater treatment for environment quality shows a correct understanding of the influence that the first has on the latter. This way of thinking is a step ahead towards acting in a sustainable manner regarding water, in particular, and environment, in general. Again, we can conclude that this is a positive situation from the point of view of creating and maintaining an environment oriented attitude of the consumers.</p>	<p>of untreated wastewaters for the environment associated with the big importance of efficient wastewaters treatment for the nature protection, pollution prevention (shown by the second question) create a strong premise for achieving a sustainable behavior.</p>
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Conclusions

The results of this research are positive from the point of view of the interest in the environment protection. They reflect both a deep concern for the problem of wastewater treatment in relation with human health and environment protection and a high awareness on the relationship water – human health – environment of the population of Cluj-Napoca city.

These beliefs are extremely important because they represent the foundation for a sustainable behavior. Without them, a sustainable action would be possible only through enforcement, which is not a panacea for the numerous dimensions of a complex subject as environment protection and cannot bring the same benefits as the actions resulted from the own convictions of the people.

The beliefs revealed by this research must be encouraged and reinforced and used within sound strategies to create and promote a sustainable behavior, which will contribute to sustainable water management and sustainable development. The information obtained from this study can be used together with information about other aspects of people's behavior related to water, in particular, or environment, in general, in order to shape their actions, their attitude so that to become more responsible, more sustainable.

Within the reality of the last and present century, the water cycle must be analyzed taking into account the human impact on it – through the technologies, the use of water by more than 7 billion people, the pollution generated and other disturbing interferences with nature. Therefore, a realistic research for sustainable development solutions includes the research of people's behavior, their concerns, beliefs, as they can explain many of the causes of the current ecological crisis and give a part of the answers needed. The study presented in this paper started from this premise and focused on consumers' insights related to water in order to offer useful tools for creating a more sustainable behavior of consumers towards environment in general, water, in particular.

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